

Application No. 10/060,121
Amendment dated 07/27/2005
Reply to Final Office Action of April 25, 2005

01-ASD-224 (GT)

REMARKS/ARGUMENTS

Claims 1-12 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,606,954 to Yamazaki et al. ("Yamazaki") in view of U.S. Patent No. 5,183,087 to Aubel et al. ("Aubel") and U.S. Patent No. 5,769,057 to Hashimoto et al. ("Hashimoto"). Applicant respectfully traverses this rejection.

The Examiner admitted that Yamazaki does not show the claimed seal and neck portion, but asserted that it would have been obvious to incorporate the filler neck seal element 24 of Aubel and the closely-fitting filler tube neck portion 22' of Hashimoto to render the claimed invention obvious. Applicant respectfully disagrees.

Contrary to the Examiner's assertion, there is no motivation to combine Yamazaki with Aubel or Hashimoto because doing so would render Yamazaki unsatisfactory for its intended purpose. As noted in MPEP 2143.01, "if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification."

With respect to this case, there is no motivation to incorporate the filler neck seal element 24 of Aubel into the Yamazaki system because doing so would render Yamazaki non-functional. As is known in the art, the amount and pressure of fuel vapor in the recirculation line must be carefully controlled so that air that is drawn into the filler tube by rushing fuel will pull the vapor back down into the tank rather than into the canister or out to the atmosphere. If there is too much fuel vapor, then excess vapor will leak into the atmosphere and cause the system to fail government emissions tests. If there is too little vapor or if a vacuum forms around the fuel nozzle, however, the interruption in vapor flow around the fuel nozzle will cause the nozzle to shut off prematurely (see, e.g., Aubel at col. 1, line 62 to col. 2, line 2).

One of ordinary skill in the art would not have incorporated Aubel's vapor-tight seal 24 into Yamazaki's filler tube 22' because doing so would prevent outside air from being drawn in with the rushing fuel to regulate the amount of fuel vapor in the filler neck. The recirculation line 27₁ in Yamazaki is restricted to limit the amount of fuel vapor directed to a

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negative pressure inducing hole 3a in the fuel nozzle 3 (col. 5, lines 3-48). The diameter of the recirculation line is carefully selected to limit the amount of fuel vapor so that any vapor that is not drawn into the hole is prevented from escaping to the atmosphere (col. 5, lines 50-55).

Aubel's seal would interfere with the amount of fuel vapor generated in the filler neck because the seal is designed to prevent vapor from escaping (col. 3, lines 22-26). If Aubel's pressure-tight seal were incorporated into the filler neck in Yamazaki, outside air would be blocked from being drawn in along with the rushing fuel, thereby creating a vacuum around the pressure inducing hole 3a of Yamazaki. This pressure drop would, in turn, shut off the nozzle prematurely. In other words, placing the seal in Aubel into the filler neck of Yamazaki would render Yamazaki unsatisfactory for its intended purpose.

In addition, Yamazaki explicitly teaches away from incorporating any type of seal in the filler neck. "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." MPEP 2141.02. The entire purpose of Yamazaki's design is to avoid putting a seal in the filler neck (see, e.g., Abstract; col. 1, lines 12-24). This teaching would have led one of ordinary skill in the art to avoid combining Yamazaki with a reference teaching a seal (e.g., Aubel).

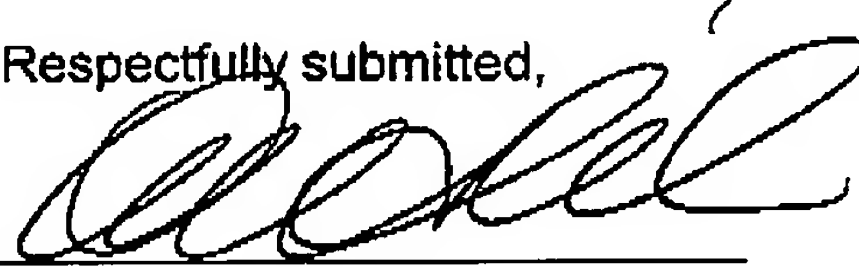
Further, there is no motivation to combine Yamazaki and Aubel with Hashimoto because modifying the dimensions of the filler neck as taught in Hashimoto doing so would upset the balance between drawn air and the fuel vapor, again either causing premature nozzle shut-off or escaping fuel vapors. Like Yamazaki, Hashimoto requires a selected amount of air to be drawn into the filler tube 3 during refilling to create negative pressure without causing premature nozzle shut-off (col. 7, lines 26-46). Changing the filler neck dimensions in Yamazaki's system as well as adding Aubel's seal would cause the nozzle in Yamazaki to shut off even more prematurely because the reduced size of the filler neck would provide even less air in the filler neck, causing a vacuum to form in the hole 3a in the nozzle even more quickly.

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Because there is no motivation to combine Yamazaki, Aubel and Hashimoto, the Examiner fails to establish a prima facie case of obviousness with respect to claims 1-12. Withdrawal of the rejection is therefore respectfully requested.

Respectfully submitted,



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